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Agricultural Engineering.

Economic depression as a challenge to the agricultural engineer. By J. Brownlee Davidson. Agricultural Engineering. v.14, no. 7. July 1933. p.178-182. His job is that of not only making material things which are foundation of well-being available in greater volume, but it is also his responsibility to cooperate in arranging for their more equitable distribution.

Engineering and rural progress. By Chas. E. Seitz. Agricultural Engineering. v.14, no.7. July 1933. p.171-177. Increased efficiency and productive capacity of farm worker resulting largely from application of engineering principles has been predominating factor in much of our social as well as our economic rural progress, countries having low individual efficiency or productive capacity per worker always have extremely low standards of living.

Agriculture.

Agricultural cooperation. By Clyde C. Edmunds. Utah Farmer. v. 53, no. 22. June 25, 1933. p. 3, 11. Agriculture today is basis of all wealth. All other lines of industry, all of professions, arts, and sciences will vanish when products of field and flock are no longer produced. It is highly important, therefore, that any movement which will tend to make farmer more contented and satisfied with his place in great program of human endeavor and progress should be fostered and encouraged.

Agricultural departmen's crop cost figures for 1932. Farm Implement News. v.54, no.15. July 20, 1933. p.18-19.

Compensation for farmers who reduce wheat acreage. Farm Implement News. v.54, no.15. July 20, 1933. p.16. If present plans of administrators of Agricultural Adjustment Act are not altered nor interfered with, approximately $150,000,000 will be paid during next 10 months to wheat growers who contract with government to reduce their acreage in accordance with request of Secretary of Agriculture, who is authorized by act to fix percentage of reduction. Two-thirds of this sum, or approximately $100,000,000 will be paid Sept. 15, 1933 and remainder after spring wheat seeding season of 1934. Compensation will be based upon average production of 1930, 1931, and 1932.

Agriculture (Cont'd.)

Estimated gross cash income from the sale of agricultural products from Ohio farms by counties - 1932. By P. P. Wallrabenstein and J. I. Falconer. 1933. 16p. mimeographed. Ohio. Agricultural Experiment Station. Mimeograph bulletin No. 60.

Facts for farmers. 1933. 144p. Wisconsin. Agricultural Experiment Station. Bulletin No. 425. Soil erosion station inaugurates comprehensive experimental program. p.55-58.

Farm or forest in the West Virginia Appalachians? By A. J. Dadisman. 1933. 12p. West Virginia. Agricultural Experiment Station. Circular No. 65. Summarizes more important facts and results given in more detail in United States Department of Agriculture Technical Bulletin No. 303.

Farm profits and factors influencing farm profits on 55 dairy farms in Warren County. By Allen G. Waller and Emil Rauchenstein. 1933. 18p. New Jersey. College of Agriculture. Extension Service. Extension Bulletin No. 105.

Forage crops for central Washington. By H. M. Wanser. 1933. 24p. Washington. Agricultural Experiment Station. Bulletin No. 281. Review of experiments under semi-arid conditions on Adams branch experiment station.

Foundations for farm recovery. 1933. 31p. Wisconsin University. Extension Service. Circular No. 255.

Prices of farm products in Maine. By Charles H. Merchant. 1933. 179p. Maine. Agricultural Experiment Station. Bulletin No. 364.

Profitable farming methods. 1933. 31p. Research division. Keystone Steel and Wire Company. Peoria, Ill.

Report of the Kansas State Board of Agriculture for the quarter ending March, 1933. Topeka, 1933. 127p. Rediscovery of the home, by Mrs. Albert Brickell. p.9-18. Government in relation to farm problems, by Dr. F. B. Bomberger. p.32-46. Meeting conditions through reorganization of the farm business, by J. A. Hodges. p.88-98.

Social planning begins new era. By Clarence Poe. Progressive Farmer. v.48, no.6. June, 1933. p.6. New Farm Relief Law, included provisions for (1) increasing farm prices; (2) refinancing farm mortgages, and (3) modernizing the American money system.

Wring out the old. By Henry A. Wallace. Country Home. v.57, no. 7. July, 1933. p.7-9, 29. How our distribution system is to be rebuilt for the benefit of farmers and the country at large.

Air Conditioning.

Air conditioning - cleaning the air. Heating and Ventilating. v. 30, no.6. June, 1933. p.13-19. Standards of air cleanliness. Air-cleaning principles. Types of air-cleaning apparatus. Filter materials. Servicing filters. Arrangement in ducts. Sizes and capacities.

Air conditioning - the lubrication factor. Heating and Ventilating. v. 30, no.7. July, 1933. p.34-37. Splash oiling systems. Pressure lubrication. Ring oilers. Viscosity. Pour test indicative of fluidity. Oils must be free from water. Filtered mineral oils most suitable.

Air conditioning - selecting the cooling equipment. By C. B. Helmrich. Heating and Ventilating, v.30, no.7. July, 1933. p.19-25. Refrigerating machines. Steam ejector cooler. Cooling with ice. Cold water pumps. Cooling coils. Air filters. Fans. Residence cooling.

Control for a steam-jet air-conditioning unit. By R. R. Houser. Heating, Piping and Air Conditioning. v.5, no.8. August, 1933. p.399-401. Control circuits for small steam-jet unit are explained in detail.

Cooling conclusions. By Samuel R. Lewis. Domestic Engineering. v. 142, no.1. July, 1933. p.57-59. One result of study was striking proof that removal of accumulated hot air from house during night, replacing it with comparatively cool air from outside, would shorten materially time-demand for refrigeration. Another observation was that it was decidedly uneconomical and unnecessary, if not undesirable, to maintain constantly fixed relation between indoor temperature and outdoor temperature.

Determination of sun effect on summer cooling loads. By G. A. Hendrickson and J. H. Walker. Heating and Ventilating. v.30, no.6. June, 1933. p.20-23. Computation of cooling load added to air conditioning unit by solar radiation requires determination of radiation intensity, unshaded transmitting area, and transmission coefficient of transmitting surface. Atmospheric transmission. Partial shading ofglass areas. Reflection and absorption by glass. Computations.

Just where does the small-building cooling situation stand? Heating and Ventilating. v.30, no.7. July, 1933. p.27. Results of survey made to determine number of air conditioning systems operating in this country and type of building in which they are installed. On this basis we believe that number of comfort-cooled buildings in country at present is approximately as follows:

	Mechanical cooling	Ice cooling	Total
Homes - - - - - - - - -	290	50	345
Offices - - - - - - - -	300	65	365
Stores - - - - - - - -	250	14	264
Restaurants* - - - -	69	14	83

*Figures are incomplete.

Air Conditioning (Cont'd)

This indicates about 1100 buildings in four important groups which are expected to furnish by all means greatest part of market for comfort cooling. Returns did not indicate how many of these buildings in each group are completely cooled. It is known, however, that some homes are cooled in certain rooms only, while most stores and restaurants occupy but small space in buildings in which they stand.

Physiologic changes during explosure to ionized air. By C. P. Yaglon, A. D. Brandt, and L. C. Benjamin. Heating, Piping and Air Conditioning. v.5, no.8. August, 1933. p.423-430. Character of ions used and method of administration. Method of study. Results. Subjective sensations in ionized air. Summary.

Present situation in air conditioning equipment. Heating and Ventilating. v.30, no.7. July, 1933. p.9-10, 12-16. Trends in air conditioning equipment, particularly that for small and medium-sized buildings, with discussion of self-contained room coolers and steam refrigeration.

Residence comfort cooling. By George B. Bright. Refrigerating Engineering. v.25, no.6. June, 1933. p.311,385. It is doubtful if any new development of science or invention of near future will prove more beneficial to civilization than control at will of air conditions in home.

Science of air conditioning. Ice and Cold Storage. v.36, no. 423. June, 1933. p.97-98. Heating, heat gain estimates, and heat loads.

Some notes on air conditioning. By C. T. Baker. Pt. 1. Refrigeration. v.54, no.1. July 1933. p.14-15.

Summer cooling requirements and equipment. By D. W. McLenegan. Fuel Oil Journal. v.12, no.2. August, 1933. p.10, 45-46 Insulation helps to reduce operating costs.

Variation in air conditions in its relation to comfort and health. By Charles S. Leopold. Refrigerating Engineering. v.26, no. 1. July 1933. p.15-16.

What does summer cooling cost? Heating and Ventilating. v.30, no.7. July, 1933. p.31-33. Analysis of operating data for cooling equipment in small and medium-sized buildings.

What will be the future development of heating and air conditioning? By Willis H. Carrier. Heating, Piping and Air Conditioning. v. 5, no.1. January, 1933. p.16-17. Present radiator heats both by radiation and convection. Panel system aims to accomplish heating by radiation alone and to so distribute that radiation as to avoid undue intensities at any particular location and, in addition, to maintain uniform air temperatures on lower plane. Second method is that of concealed radiation by which

Air Conditioning (Cont'd)

practically all of heat is introduced to room by convection. Third method, which is growing rapidly, is that of forced convection, with air supplied from central source and heat distribution either through air-volume control or individual convectors. Another improvement being made is that of heat generators. Another improvement being made is that of heat generators. In field of oil burning, boilers are being designed for steam and hot water for special application to particular type of burner. Various types of furnaces using coal are, however, not to be overlooked in this modern trend in development. Now trend in comfort air conditioning is concerned with improved methods in distribution of cold air supply to prevent stratification and drafts. Great progress has also been made in process of refrigeration applicable to air conditioning. Water, too, is being used as a refrigerant. Compression of water vapor is accomplished without any mechanical means but through simple and relatively efficient steam ejector. Several restaurants and other places have been cooled in this manner during past summer, and some larger installations may be expected to be in operation during coming year. It is particularly adaptable to places where cheap and unlimited water supply is available. Air conditioning for human comfort is definitely receiving general public acceptance. There will be many wild ideas regarding its cost and commercial possibilities, but eventually, and possibly before long, air conditioning will be accepted as essential requirement in all modern structures, just as heating has been so accepted in last 100 years.

Building Construction.

Code of fair competition for general contractors. Engineering News Record. v.111, no. 3. July 20, 1933. p.82-84. Industry code submitted for approval to National Recovery Administration by general contractors includes "local-agreement" minimum wage, 150-hour month, outlawing of bid peddling and fairness to subcontractors. Text of code.

How to control termites. By Evan L. Fellman. American Builder. v. 55, no.2. May, 1933. p.40. Houses built low to the ground in today's style invite termite attack. Generally speaking, there are two methods of controlling termites in infested buildings. First is by making changes in construction and through use of concrete and metal termite shields over foundation walls. Second method of controlling termites is by chemical means.

New materials and methods in country house construction. By Roger W. Sherman. Architectural Forum. v.58, no.3. March 1933. p.225-234. Walls; Framing; Solid walls; Exterior materials; Floors; Partitions; Finish materials; Miscellaneous.

Building Construction. (Cont'd)

New style connectors for timbers. By N. S. Perkins. American Builder. v.55, no.2. May, 1933. p.26-27. Joints 15 times stronger than bolted connections developed by European engineers.

Plywood as a building material. By Phillip S. Hill. Mechanical Engineering. v.55, no.6. June 1933. p.355-357,386. Plywood forms for placing concrete; Plywood wallboard; Sub-floors and sheathing; Plywood sheathing.

Pre-planning low cost housing projects to meet economic requirements. By Alfred M. Butts. American Architect. v.143, no.2616. March 1933. p.31-34.

Concrete.

Laboratory and field tests of concrete exposed to the action of sulphate waters. By Dalton G. Miller and Philip W. Manson. 1933. 80p. U. S. Department of Agriculture. Technical bulletin no. 358.

Culverts.

Supporting strength of rigid pipe culverts. By M. G. Spangler. 1933. 100p. Iowa. Engineering Experiment Station. Bulletin no. 112.

Dairy Equipment.

Care of milking machines. The Jersey Bulletin and Dairy World. v. 52, no.30. July 26, 1933. p.933, 946.

Care of milking machines. By E. G. Hastings and George Werner. 1933. 16p. Wisconsin. College of Agriculture. Extension Service. Circular no. 259.

How to produce clean milk. By B. E. Horrall. 1933. 6p. Purdue University. Department of Agricultural Extension. Leaflet no. 186.

Dams.

Hydraulic-model tests for Boulder Dam spillways. By E. W. Lane. Engineering News Record. v.111, no.6. August 10, 1933. p.155-159. Design for side-channel spillways with drum gates determined after exhaustive tests. Record size models on 1:20 scale use flow of 112 sec.-ft. Conditions of tunnel discharge studied.

Dams (Cont'd.)

Laboratory tests on hydraulic models of the Hastings dam. By Martin E. Nelson. 1932. 71p. University of Iowa. Studies in Engineering. Bulletin no. 2.

Redesign and construction of Prettyboy dam. Engineering News Record. v.111, no.3. July 20. 1933. P. 63-67. Rotten rock disclosed during construction of new concrete dam for water supply of city of Baltimore, Md., called for enlargement of structure and change in construction method.

Drainage.

Divisor for taking aliquots of runoff. By R. E. Uhland. Agricultural Engineering. v.14, no.7. July 1933. p. 186-188. Divisors are made up of series of venturi type of flume. Runoff water flowing through apparatus is divided at end of each flume, representing unit of device as it passes over step-like drop. Conclusions: 1. Results from calibrating tests of ten small divisor flumes and one large divisor flume have demonstrated that it is possible to manufacture these devices so that they will duplicate one another. 2. Presence of silt in water did not affect accuracy of flume. 3. Entering water at either end of concentrating trough demonstrated that aliquot conforms to that obtained when water is entered uniformly over entire length of trough. 4. Calibration curves were secured for both large and small divisors which give relation between discharge into concentrating trough and depth in back part of first Venturi unit of tandum of units. 5. Preliminary tests indicate that it will be possible to design divisor flumes of this type by which other than equal divisions of runoff can be made. 6. While it is preferable that each divisor be separately calibrated, it was found that divisors constructed by efficient sheet metal worker and installed using only level and square gave aliquot which varied less than 5 per cent from theoretical. 7. Since large size divisor which makes seven equal divisions performed in such close conformity with smaller size making five divisions, it seems logical to conclude that size can be safely increased by adding more Venturi units.

Improved transition adds to flume capacity. By J. A. Fraps. Engineering News Record. v.111, no.4. July 27, 1933. p.110-112. Change in hydraulic characteristics of transition, using timber lining, increases flow limit from 360 to 400 sec.-ft. in Agua Tria River flume of Roosevelt Irrigation District.

Tile drainage in the orchard. By C. W. Ellenwood and J. T. McClure. The Bimonthly Bulletin, Ohio Agricultural Experiment Station. v.18, no.163. July-August, 1933. p.95-100.

Electric Wiring.

How wire sizes affect lighting economy. By W. H. Horton. American Architect. v.143, no.2616. March 1933. p.19-22.

Looking forward to farm wiring. Electrical World. v.102, no.3. July 15, 1933. p.88. New Hampshire Rural Electrification Committee recommends that rural service department of utility company co-operate with prospective customer in planning his wiring requirements, showing, however, that power company has no financial interest in wiring installation. It is strongly urged by committee that all recommendations regarding farm wiring be made by rural service representative, eliminating contacts with various specialists which in past have proved annoyances.

Electricity in the Home.

Care and operation of electric household equipment. By Gail M. Redfield. 1933. 6p. Purdue University. Department of Agricultural Extension. Leaflet no. 187.

Trends in lighting and electrical equipment. Architectural Forum. v. 58, no.3. March 1933. p.241-244.

Utensils for the electric range. By Evelyn H. Roberts. 1933. 20p. Washington. Agricultural Experiment Station. Bulletin no. 283.

Electricity on the Farm.

Electrically operated appliances for the garden. Rural Electrification and Electro-Farming. v.9, no.97. June 1933. p.20-22. Electric light in the garden: Ultra-violet, incandescent gas-filled lamps, and neon lamps. Electric heat in the garden and greenhouse.

Minutes. Tenth annual meeting Committee on the Relation of Electricity to Agriculture. Chicago, Illinois. Thursday June 29, 1933. 1933. 9p. multigraphed.

Recent developments in farm electrification. By Geo. W. Kable. Agricultural Engineering. v.14, no.8. August 1933. p.203-206.

Some problems of applying electricity to agriculture. By F. E. Rowland. Rural Electrification and Electro Farming. v. 9, no. 97. June 1933. p.24-25. Farmhouse; Farm lighting; Electric motors; Electric threshing; Pumping and small motor applications; Poultry farming.

Why I like my electric equipment. By Charles L. Marshall. New England Homestead. v.106, no.12. June 10, 1933. p.3. Has made work lighter, life more enjoyable, and increased income.

Erosion Control.

Erosion control imperative. Farm Machinery and Equipment. no.1795 July 15, 1933. p. 14. U. S. is depleting its agricultural lands faster than any nation.

New soil-saving machine patented. Market Growers Journal. v.53, no. 3. August 1, 1933. p.246-247. The invention of a machine which successfully prevents soil erosion and conserves moisture in soils. Machine combines ordinary cultivator with set of shovels which dig about 10,000 holes an acre, giving wafflelike appearance to fields. Machine makes it possible to retain approximately 2 inches of rainfall without damage to land from soil washing and with much benefit to crops, especially in regions of light rainfall, through increased storage of moisture.

New type of installation for measuring soil and water losses from control plots. By H. V. Geib. Journal of the American Society of Agronomy. v.25, no.7. July 1933. p.429-440. Description of installation employed; Concentration funnel; Flume; Settling box; Screening system; Dividing arrangement; Divisor box; Details of divisor box construction; Construction of baffle; Determining number of weir slots necessary; Attachment of divisor boxes; Catch tank; Determining amount of runoff and erosion; Testing divisor boxes; Accuracy of divisor boxes.

Soil erosion: a partial bibliography. Washington, U. S. Department of Agriculture, 1933. 82p. mimeographed.

Soil rebuilding at the Red Plains erosion station. By S. W. Phillips. Journal of the American Society of Agronomy. v.25, no.5. May 1933. p.346-350. Relation of erosion to yield and quality of cotton; Relation to moisture; Erosion control studies.

Explosives.

Safety for the occasional uses of explosives. By Arthur LaMotte. Farm Machinery and Equipment. No. 1795. July 15, 1933. p.16-18.

Farm Buildings and Equipment.

Danish type of pig-house. Journal of the Ministry of Agriculture. v. 40, no.2. May 1933. p.103-106.

Farm Machinery and Equipment.

Allis-Chalmers springs the corn belt combine. Farm Implement News. v.54, no.16. August 3, 1933. p.16-18. Demonstration where rubber-tired machine harvests at 5 m.p.h. behind air-tired tractor.

Farm Machinery and Equipment (Cont'd.)

Can the advantages of machine production in agriculture be retained? By Walter E. Packard. Agricultural Engineering. v.14, no.7. July 1933. p.183-185. We face necessity of balancing supply and effective demand by increasing consumption through broadening of base of our higher standards of living or dropping down into peasantry, with loss of much of advantage we have gained through machine production. Certain it is that unless large part of those who have been employed in expansion activity, through adoption of shorter hours and broadening of base of our higher standard of living, we face peasantry in agriculture and loss of advantages of machine production.

Dairyman devises new flaking machine. Hoard's Dairyman. v.78, no. 10. May 25, 1933. P. 196. Mechanical advantages are claimed for new machine - 1, machine is of simplest construction; 2, capacity and power requirements compare favorably with those of other machines; 3, dust is eliminated; 4, there is no noise; 5, moisture content of grain makes little difference; it works quite as well with wet as with dry grain; 6, it requires little lubrication attention.

Farm power replaces workers. Utah Farmer. v.53, no.22. June 25, 1933. p. 2. Despite decrease of more than 2,000,000 agricultural workers in United States from 1910 to 1930, there was increase of 8 acres in harvested crops for each farm and increase in total harvested crops of 47,000,000 acres, result in part of use of power and machinery on farms, engineers of United States Department of Agriculture found in recent survey. Each worker in 1930 cared for about 36 acres of land, and in 1910 for about 26 acres. Before Civil War each worker cared for about 15 acres.

Implements and machinery at the Royal show. Implement and Machinery Review. v.59, no.699. July 1, 1933. p.245-265.

Man-hours per acre in corn production. Farm Implement News. v.54, no.15. July 20, 1933. p.19. Table shows results of Ohio investigation with small units of horse-drawn equipment with larger units of same and with tractor-drawn equipment, except planter. Operations included plowing, disking, harrowing, cultipacking, planting, cultivating, husking, and cribbing. These operations required 27.63 man-hours per acre with small horse-drawn equipment; 20.19 with larger horse-drawn units, and only 7.48 where all operations were of power farming except planting, which was done with horses.

More trade from new farm deal. Implement and Tractor Trade Journal. v.48, no.14. July 15, 1933. p.6-7. Attaining maximum yields per acre and diversion of acreage to other production calls for new equipment. New money from A.A.A. challenge to salesmanship.

A new type of cotton sorter. By E. H. Pressley. Journal of the American Society of Agronomy. v.25, no.2. February 1933. p.89-98. Description of sorter; Preparation of sample for sorting; Discussion of results obtained.

Farm Machinery and Equipment (Cont'd)

Pennsylvania system of mechanized potato production. By R. U. Blasingame. Agricultural Engineering. v. 14, no.7. July 1933. p.189. Planting. Cultivation. Spraying. Water supply. Potato harvesting. Graders. Storage houses.

Report of an inquiry into changes in quality values of farm machines between 1910-14 and 1932. By J. B. Davidson, G. W. McCuen, and R. U. Blasingame. St. Joseph. Michigan American Society of Agricultural Engineers. 1933. 165p.

State College of Washington experimental fruit washer. By Harry L. Garver, Homer J. Dana, and Fred L. Overley. 1933 28p. Washington. Agricultural Experiment Station. Bulletin no. 285.

U. S. funds for implement debts. Implement and Tractor Trade Journal. v.48, no.14. July 15, 1933. p.9. Provisions of Emergency Act permit advances for this purpose. No loans on unimproved wheat lands.

Use of the small hay-sweep. Journal of the Ministry of Agriculture. v.40, no.2. May 1933. p.101-103.

Farmhouses.

Housing conditions in relation to farm labor turnover--A study of 1090 farm houses in five counties in Maryland. By Margaret Coffin. 1932. 371-411p. Maryland. Agricultural Experiment Station. Bulletin no. 341. Survey showed direct relation between assessed value of house and farm and that length of tenure on farm as rule had direct relation to value and consequently character of house.

Fertilizers.

Availability of phosphatic fertilizers. By R. P. Bartholomew. 1933. 19p. Arkansas. Agricultural Experiment Station. Bulletin no. 289.

Fire Protection.

Water systems for fire protection on farms. Advance publication of the Report of the Committee on Farm Fire Protection. 1933. 7p. National Fire Protection Association. Boston, Mass.

Floods and Flood Control.

Analysis of flood produced by severe California cloudburst. Engineering News-Record. v.111, no.5. August 3, 1933. p.128.

Developing the Atchafalaya for greater floodflow. Engineering News Record. v.111, no.4. July 27, 1933. p.102-105. Creating self maintaining channel in Atchafalaya River by shortening, slope equalization and removal of constrictions by cutoffs and agitation dredging.

Floods and Flood Control. (Cont'd.)

New plans for the Mississippi. Contraction works stabilize low-water channel. Engineering News-Record. v.111, no.5. August 3, 1933. p.133-137. Shallow navigation depths between Cairo and Memphis are being increased by narrowing and stabilizing the low-water channel by means of spur dikes.

Record floods in Colorado, Wyoming, and Arizona formulized. By Paul V. Hodges. Engineering News-Record. v.111, no.6. August 10, 1933. p.171.

Special river problems studied by models. Engineering News-Record. v.111, no.3. July 20, 1933. p.79-81. Tests of Bonnet Carre railway embankment and floodway, of pilot channel for Boeuf floodway and of operation of New Madrid floodway yield information of general interest.

Floors.

"Resilient" flooring materials. American Architect. v.143, no. 2616. March 1933. p.89-95. Factors influencing selection; Point loads on resilient floorings; Sub-floor requirements; Asphalt tile; Linoleums; Cork composition tile; Cork tile and cork carpet; Rubber tile; Wood fibre flooring; Special conditions and accessories.

Forage Drying.

Chopped hay vs whole hay. New England Homestead. v.106, no.12. June 10, 1933. p. 5, 9. One particular advantage claimed for new method is that less than half storage space is needed for chopped hay as for bulk hay. Other comments favoring chopped hay, made by farmers include: less hay wasted; easier to keep mangers clean; stock do not pull hay from feeding rack and trample underfoot; easier to handle in lambing shed; less mice damage in cereal hay; beef cattle fill up quicker and then lie down; work horses eat their hay in less time; animals come through winter in better condition; dairy calves take to hay earlier in life; hay can be easily weighed as fed; stock consume more hay; hay sells for more; hay that would ordinarily be refused can be fed.

Hay at its best. By L. R. Neel. Southern Agriculturist. v.63, no. 5. May, 1933. p.5. Immature plants make best hay. Best part of hay is in the leaf. Rain lowers food value of hay. Curing in windrow. Good hay will replace grain. Value of hay for stock.

New era in hay making. Northwest Farm Equipment Journal. v.47, no. 7. July 1933. p.21-22. Discussion of pick-up baler.

Fuels.

Agricultural alcohol: Editorial. California Cultivator. v.80, no. 14. June 10, 1933. p.282. We are of the opinion that proposed legislation would saddle burden on gasoline users all out of proportion to benefits that would accrue to our farmers therefrom. In fact, we rather question whether or not such law, in long run, would be any benefit to them. We do, however, see possibility in manufacture of alcohol from many farm products of inferior quality that are now either wasted or, worse still, thrown on to markets to beat down price of better products. If manufacture of alcohol for fuel purposes is at all feasible, why not build centrally located plants in areas where there are sufficient of wasted farm products easily available to justify and convert them into fuel alcohol? If there was no market for the alcohol after it was manufactured each farmer contributing produce could take his share of fuel and use it in his trucks, tractors or automobile and thereby reduce his gasoline bill by just that much.

Alcohol fuel authorized in Italy. Oil, Paint and Drug Reporter. v.123, no.24. June 12, 1933. p.48. "Velox". Contains absolute alcohol, aeration gasoline, benzene, acetone, ether and castor oil.

Alcohol fuel in farm relief. Oil, Paint and Drug Reporter. v.123, no.21. May 22, 1933, p.48 A - 48 B. Agricultural group sends collected data to Congress in study of proposed legalization.

Alcohol is gasoline. Grain and Feed Journals. v.70, no.8. April 26, 1933. p.283. Rep. Dirksen of Illinois has taken up with James M. Doran, Commissioner of Industrial alcohol at Washington, matter of releasing denatured alcohol for mixing with motor fuel to extent of 5 to 10 per cent. Figures furnished by American Petroleum Institute show consumption of gasoline in Illinois alone averages billion gallons annually, which is about one-seventeenth of all gasoline consumed in nation. Leading alcohol distillers anticipate Federal and State legislation providing 2 to 2½ per cent alcohol in all gasoline sold and are preparing for substantial increase in corn alcohol.

Alcoholized fuels would cost our customers a half billion. By Joseph Geschelin. Automotive Industries. v.58, no. 21. May 27, 1933. p. 644-647. At best only some farmers would benefit by bills which would encourage continued over-production. Outstanding facts are:- 1. That annual fuel bill paid by consumers all over United States would be increased by amount variously estimated between $400,000,000 and $600,000,000, depending upon percentage of alcohol in blend and prevailing price

Fuels. (Cont'd)

of grain. 2. That this added tax on fuel bill would give consumer no benefits whatever in car performance, engine performance, or economy. 3. That technical difficulties involved, not only in production of gasoline-alcohol mixture, but also in its utilization, should be solved before political expediency makes mandatory use of special fuel.

Alcoholized fuels would cost our customers a half billion. By Joseph Geschelin. Automotive Industries. v.68, no.21. May 27, 1933. p.644-647. At best only some farmers would benefit by bills which would encourage continued over-production. Outstanding facts are:- 1. That annual fuel bill paid by consumers all over United States would be increased by amount variously estimated between $400,000,000 and $600,000,000 depending upon percentage of alcohol in blend and prevailing price of grain. 2. That this added tax on fuel bill would give consumer no benefits whatever in car performance, engine performance or economy. 3. That technical difficulties involved, not only in production of gasoline-alcohol mixture, but also in its utilization, should be solved before political expediency makes mandatory use of special fuel.

Alcoholized gasoline inferior, says petroleum chemist. Science News Letter. v.23, no.636. June 17, 1933. p.380-381.

Farm-product alcohol as motor fuel. Oil, Paint and Drug Reporter. v.123, no. 24. June 12, 1933. p.43. Dr. G. G. Brown, Michigan University professor, discusses various phases of proposal.

Fuel oils. 2d ed. Washington. U. S. Government Printing Office. 1933. 13p. U. S. Bureau of Standards Commercial Standard CS12-33.

Fuel tests show little difference in economy. Implement and Tractor Trade Journal. v.48, no.14. July 15, 1933. p.11. No material differences in fuel economy in use of plain gasoline and of gasoline-alcohol blends in tractors operating on belt or in field and in motor trucks running on paved highways was disclosed in recent tests by U. S. Bureau of Agricultural Engineering. In laboratory, tests in high compression engine showed some difference in fuel economy and in power developed in favor of blend.

Performance tests of alcohol-gasoline fuel blends. By R. B. Gray. Agricultural Engineering. v.14, no.7. July 1933. p.185.

Results of recent farm tractor fuel studies. By C. G. Krieger. Agricultural Engineering. v.14, no.7. July 1933. p.177. By changing accessories of stock engines so as to give maximum efficiency on better grades of gasoline possessing high anti-knock value there was average increase of 27 per cent in brake horsepower, average increase of 24 per cent in torque, and average improvement of 26 per cent in fuel economy. It is conservative to estimate that

Fuels. (Cont'd.)

overall efficiency of average tractor engine could be increased from 20 to 25 per cent by designing them to run exclusively on standard grades of gasoline. All tests which have been run indicate that, when gasoline is used instead of low grade fuels, life of lubricating oil is increased from two to three times. Life of valves in tractor engines was materially increased when gasoline was used instead of kerosene.

Thermal properties of petroleum products. By C. S. Cragoe. November 9, 1929. Washington. U. S. Government Printing Office. 1933. 48p. U. S. Bureau of Standards. Miscellaneous Publication no. 97.

Use of alcohol in motor fuels. Progress report no. 7. Road tests on alcohol-gasoline mixtures. 1933. 11p. mimeographed. Iowa State College. Ames, Iowa.

Heating.

Cold walls and their relation to the feeling of warmth. By F. C. Houghten and Paul McDermott. Heating, Piping and Air Conditioning. v.5, no.1. January, 1933. p.53-58. Effects which thermal properties of man's atmospheric environment have on his feeling of warmth and his body reactions have been subject of extensive research carried on in recent years by physiologist and air-conditioning engineer. Conclusions: 1. Increased radiation of heat from occupants in room to cold walls on three sides is shown to require higher air temperature for same feeling of warmth. 2. It is shown that in cold wall room observed temperatures by mercury thermometers may vary depending on whether bulb is shielded from or exposed to view of cold walls and of occupants. 3. Walls of large area having considerably lower temperature than corresponding air give feeling of discomfort to occupants seated nearby due to resulting feeling of coldness in those parts of body exposed to cold walls, even though room air temperature is high enough to give overall sense of not being cold. This is particularly true of large windows without compensating radiator nearby.

Ever-changing picture of automatic heating for residences. Heating and Ventilating. v. 30, no. 7. July 1933. p.17-18.

Heating and air conditioning. Architectural Forum. v.58, no.3. March 1933. p.235-240. Straight heating; Automatic heating; Air conditioning.

Simple, accurate infiltration calculations. By O. J. Kuenhold. Heating and Ventilating. v.30, no.7. July 1933. p.37-38. No filtration loss occurs from any room unless there is actual loss of warmed air from room. Cold air filtering into room occasions no heat loss from that room. True, extra heat must be put into that room to offset cooling influence of infiltered air, but this added heat is not lost until filtered air has "drifted" across house to leeward rooms and is exfiltered.

Heating. (Cont'd.)

Tests of convectors in a warm wall testing booth. By A. P. Kratz, M. K. Fahnestock and E. L. Broderick. Heating, Piping and Air Conditioning. v.5, no.8. August 1933. p.431-434. Paper includes results from part of work obtained in connection with an investigation conducted by the Engineering Experiment Station of the University of Illinois, constituting continuation of program devoted to study of performance of convectors in warm wall booth.

Houses.

"Back to the land" homes most popular in 1933 market. American Builder. v.55, no.2. May 1933. p.14-17.

Construction details for a low cost cabin. American Builder. v.55, no.2. May 1933. p.25.

Country house kitchen. Architectural Forum. v.58, no.3. March 1933. p.245-248.

How to supply the country home with modern city conveniences. American Builder. v.55, no.2. May, 1933. p.18-19. "Back to the land" movement is helping to raise rural housing standards. Running water, sewage disposal and gas for cooking are first essentials. They cost little more in country than in town. Accompanying drawing shows typical piping layout for average size home with hot water tank which may be equipped either for gas or electric heat. Pressure water system is first step toward convenience of hot and cold water under pressure. Installation of electric pump and pressure tank and connection with well as shown is an ideal one. Lack of adequate water supply does not prevent camp owners from enjoying modern toilet facilities. In mountain cabins, seashore cottages, tourists' camps, parks and resorts, chemical systems provide convenient toilet service and safe method of sewage disposal.

Roosevelt asks two billion for home building and refinancing. American Builder. v.55, no.2. May 1933. p.12-13. In message to Congress President urges prompt legislation to aid urban home owners. Bills introduced in both Houses. Permanent plan of loan agencies provided. New home building to be fostered by broadened Home Loan Banks.

Steel houses. Architectural Forum. v.58,no.4. April 1933. p.327-331. Review of who is making them, wherein they differ, what they cost, and how they are built.

Houses, Remodeling.

Modernizing the small house. By Frederic Arden Pawley. Architectural Forum. v.58, no.1. January 1933. p.3-8. 1. Sanitation and plumbing. 2. Structural repairs. 3. Weatherproofing, insulation and fire protection. 4. Heating and ventilation. 5. Electrical work. 6. Plan, alteration and additions. 7. Decoration and miscellaneous.

Stuffy, dull, and dreary -- renovated, revivified, remodeled! Better Homes and Gardens. v.11, no.7. March 1933. p.14-15, 69-71.

Insulation.

Corrugated paperboard as an insulating material. By M. M. Murphy, Jr. W. T. Ziegler, and J. G. Woodrof. Ice and Cold Storage. v.36, no.423. June 1933. p.99-101. Experiments to determine its suitability, especially for containers for refrigerated food.

Insulation. Refrigerating Engineering. v.25, no.6. June 1933. p.356,358. Cork; Dry zero; Balsam wool; Zerolite; Celotex; Temlock; Balsa wood.

Insulation of open hearth furnaces concerns the refractories man. By E. F. Entwisle. Brick and Clay Record. v.83, no.1. July 1933. p.17-18,28. Studies on the behavior of silica brick at high temperatures have indicated economies which are interesting steel men.

Make glass silk for insulation. Brick and Clay Record. v.83, no.1. July 1933. p.10. Report comes from London, England, that Chance Brothers and Co., manufacturers of glassware, are marketing glass silk for insulating practices. This product is not glass wool such as is being used in this country, but new product made of glass spun into thick layer of silk msterial. It is used to cover boilers and pipes, and because of its soundproof qualities it is being applied between floors and walls.

Non-structural insulation added to celotex line. Building Material Digest. v.2, no.7. July 1933. p.15. Celotex Rock Wool Batt is designed to furnish highly efficient insulation where insulation alone is needed, where no structural qualities are required. It is made "wall-thick".

Selling ammunition for insulation and ventilation sales. Building Material Digest. v.2, no.7. July 1933. p.17. Cow requires oxygen in 3542 cubic feet of air each hour to properly assimilate or burn the food and water it consumes. All things being equal, such as quantity and quality of food and water, animal provided with proper volume of pure air will more thoroughly digest food and water consumed. Results will be maximum production of milk, heat and body development.

Irrigation.

Irrigation paid this grower 2300 per cent. Oregon Farmer. v.56, no.16. July 13, 1933. p.4,18.

Irrigation practice and engineering. v.1. Use of irrigation water and irrigation practice. By B. A. Etcheverry and S. T. Harding. 2d ed. N.Y. McGraw-Hill Book Company, Inc. 1933. 256p. In preparation, authors have endeavored to meet needs of teachers and students in courses in these subjects and also to present material in form that will be useful to those engaged in construction or management of irrigation systems. Changes from first edition are mainly in examples used to illustrate principles of practice with some changes in applications rather than in scope of treatment of subject. Revision represents complete rewriting of first edition. Its purpose is to present essential features of good irrigation practice with sufficient material regarding subjects involved to support principles set forth. Treatment of irrigation practice in this volume is limited to handling and use of water on farm.

Making the flood-water raise crops. By Casey E. Bartholmess. Montana Farmer. v.20, no.21. July 1, 1933. p.1.

Pear orchard irrigation. By R. A. Work. Rogue River Valley Pear-o-scope. v.1, no.4. July 1933. p.1,9-10.

Porous canvas hose irrigation system. By H. J. Gallagher. Electricity on the Farm. v.6, no.8. August 1933. p.8-9.

Porous hose irrigation. By O. E. Robey. 1933. 22p. Michigan State College of Agriculture and Applied Science. Extension division. Extension Bulletin No. 133.

Pump irrigation investigations in Nebraska. By E. E. Brackett and E. B. Lewis. 1933. 31p. Nebraska. Agricultural Experiment Station. Bulletin No. 282.

Put 10,000,000 acres in irrigation project. Washington Farmer. v.68, no.16. July 13, 1933. p.18. 10,000,000-acre irrigation project is one of Soviet plans in preparation for which Russian agronomists have been making world-wide studies for last two years. Plan to irrigate about 10,000,000 acres in Volga region, devoting 4,000,000 acres to wheat and rest to alfalfa and other crops. Estimates that irrigation of wheat acreage should increase yield 120,000,000 bushels.

Results of beet irrigation tests. Utah Farmer. v.53, no.22. June 25, 1933. p.8. Report on this study at Colorado Agricultural College shows frequent irrigations of sugar beets, beginning June 16, with one hour applications of water every two weeks, and with one late application on September 23, resulted in yield of 22.35 tons per acre, best yield obtained in study of five different methods of irrigation here last year.

Irrigation. (Cont'd.)

Seasonal rates for irrigation advocated. Electrical World. v.102, no.2. July 8, 1933. p.35. E. K. Murray, Director of Washington Department of Public Works, states that if reduction in existing rates is decreed order will cover only rates for 1933 irrigation season and will be retroactive to April 1. Department's engineers contend that eastern Washington should adopt seasonal rate rather than monthly basis for power rates. If flat rate charge is eliminated, it is claimed, customer would pay only for what he uses.

This project alters the map. Oregon Farmer. v.56, no.16. July 13, 1933. p.3. Community cooperation makes possible irrigation of 340 acres.

Water boosts hop yields. Oregon Farmer, v.56, no.16. July 13, 1933. p.2. Irrigating and drying with electricity found practical.

Land.

Trends in land use and a potential forest area in Ohio. By J. H. Sitterley and J. I. Falconer. 1933. 5p. mimeographed. Ohio. Agricultural Experiment Station. Mimeographed bulletin no. 59.

Lubrication.

Construction machinery protection by effective lubrication. Lubrication. v.19, no.7. July 1933. p.73-84. Internal combustion engines; Electric motors; Steam cylinders; Air compressors; Air tool lubrication; Wire rope; Transmission and reduction gears.

Proper wire-rope lubrication. By A. J. Morgan. Power. v.77, no.8. August 1933. p.430-431. Gives fundamental qualities necessary in good lubricant to act both as protector and lubricant, and outlines methods of applying it.

Meters.

Meters for minute quantities. By F. S. Stickney. Electric Journal. v.30, no.7. July 1933. p.288-289.

New flow meter uses side contractions only. By Floyd A. Nagler. Engineering News-Record. v.111, no.5. August 3, 1933. p.132. Type of construction employed in new meter is only possible in view of progress that has been made in art of welding. As installed in hydraulic laboratory at Iowa, side-contraction meter has several advantages: (1) Cost of 48-in. meter was less than 10 per cent of quotation of American manufacturer on standard venturi meter of this same size and contraction furnished. (2) At times when water carries considerable silt accumulation of sediment upstream from standard venturi meter would result in erroneous measurements of flow. On other hand, no such accumula-

Meters. (Cont'd.)

tion of sediment will take place above side-c ntraction meter; it is self-cleaning, and complete drainage of pipe can be secured at any time. (3) Meter has smaller loss of head than standard venturi meter proposed for this installation. (4) It is possible to measure discharge when pipe is only partly filled with flowing water, since under this condition side-contraction meter is similar to venturi flume.

Rating and use of current meters. By Carl Rohwer. 1933. 133p. Colorado. Agricultural Experiment Station. Technical Bulletin No. 3.

Miscellaneous.

Basic soundness of utility investments remains intact. Electrical World. v.102, no.3. July 15, 1933. p.81-83. Threatening legislation probably impermanent. Taxation burdens handicap progress. Wasteful governmental competition ahead.

Blue book of southern progress, 1933. Baltimore, Md. Manufacturers Record Publishing Co., 1933. 82p.

Disinfectants and disinfection. By F. B. Hadley and E. C. McCulloch. 1933. 12p. Wisconsin. College of Agriculture. Extension Service. Circular No. 256.

Facts and figures of the automobile industry. 1933 edition. 1933. 96p. National Automobile Chamber of Commerce. Washington, D. C.

Friction - Research evaluates its forces. By L. M. Tichvinsky. Electric Journal. v.30, no.7. July 1933. p.300-302.

Human energy cost of certain household tasks. By VeNona W. Swartz. 1933. 23p. Washington. Agricultural Experiment Station. Bulletin No. 282.

Learning the philosophy of profit. By J. L. Harrison. Engineering News Record. v.111, no.3. July 20, 1933. p.73-75. Contracting is series of problems in buying and selling. Service alone justifies profit. Unrestricted competition is disastrous to profits. Philosophy of capital and profits. Business cycles, price levels and profits.

Leisure - A fine art. By E. A. Holbrook. Electric Journal v.30, no.7. July 1933. p.284-287. Problem of leisure time is something that has come on this country rather suddenly, in terms of generations, at least so far as mass of people is concerned. We do not employ our leisure hours gracefully because we have never had enough of them, to practice on.

Miscellaneous. (Cont'd.)

Manufacturers adopt NIRA code. Electrical World. v.162, no.3. July 15, 1933. p.65-67. Basic wage 35 cents. 36-and 40-hour weeks. Cost accounting and statistics provided. Supervising agency for each product group.

Population trends in Michigan. By J. F. Thaden. 1933. 38p. Michigan. Agricultural Experiment Station. Special Bulletin No. 236.

Public confidence gains as things pick up. By George F. Dunning. Oregon Farmer. v.56, no.16. July 13, 1933. p.4. Agricultural adjustment and industrial recovery programs coordinated to bring about national response.

Transactions of the American Geophysical Union. 14th annual meeting. April 27, 28, 29, 1933. Washington, D. C., National Research Council, 1933. 521p. American Geophysical Union is American National Committee of International Union of Geodesy and Geophysics. Objects of Union are to promote study of problems concerned with figure and physics of earth, to initiate and coordinate researches which depend upon international and national cooperation, and to provide for their scientific discussion and publication. In accomplishment of these objects, Union is divided into sections, namely (a) geodesy, (b) seismology, (c) meteorology, (d) terrestial magnetism and electricity, (e) oceanography, (f) volcanology, and (g) hydrology.

Muscle Shoals.

Tennessee Valley project. By Joe Hatcher. Southern Agriculturist. v.63, no.6. June 1933. p.5,9. Gigantic as Alabama's Muscle Shoals or Tennessee's Cove Creek may be, neither is more than relatively small unit in greater plan of President Franklin D. Roosevelt for development of Tennessee River Basin. These two great projects are but great steps in Rooseveltian Seven-League-Boots toward system of regional planning and development of natural resources for economic restoration and independence. They are to become first stages of general plan of decentralization, diffusion, and expansion of industry and agriculture - or more simply bringing of industry to agriculture that neither may be top-heavy.

Tennessee Valley project. By Cully A. Cobb. Progressive Farmer. v.48, no.6. June 1933. p.5.

Valley of dreams. By Harris Dickson. Country Home. v.57, no.8. August 1933. p.12-14,26. Discussion of Muscle Shoals project.

Poultry Houses and Equipment.

Practical sanitation to control poultry diseases. By Leon Todd and L. P. Doyle. Rev. ed. 1933. 12p. Purdue University. Cooperative Extension Work in Agriculture and Home Economics. Extension Leaflet No. 173.

Washington laying house. By M. W. Miller, J. S. Carver and W. D. Buchanan. 1933. 8p. Washington. State College. Extension Service. Poultry pointers. No. 11.

Power.

Horse prices climb uphill. By Gilbert Gusler. The Farmer and Farm, Stock and Home. v.51, no.8. April 15, 1933. p.6. Demand rising, supply falling. Drift back to horses is due primarily to unequal decline in cost of mechanical power. Strength of future demand for horses will depend largely on this factor of relative costs. As long as state of economic depression continues, low prices for farm products and cheap farm labor will give horse advantage.

Power, labor and machine costs in crop production, Linn County, Missouri, 1930. 1933. 48p. Missouri. Agricultural Experiment Station. Research Bulletin No. 197. Presents results of cost studies made to determine power, labor and machine costs of producing common farm crops; to determine how and why these items of cost vary; to determine how these causes of variation in cost factors may be used in selection of most economical amounts of power, labor, and machinery for given set of conditions.

Public Works.

Advance planning of public works by states. 1933. 33p. multigraphed. Compiled by American Engineering Council, American Institute of Architects, Associated General Contractors, in collaboration with Federal Employment Stabilization Board.

Advisory Board for each State announced by P.W.A. Engineering News-Record. v.111, no.5. August 3, 1933. p.147-149. Gives personnel of boards by States.

Policies and organization of P.W.A. place engineers in key positions. Engineering News-Record. v.111, no.5. August 3, 1933. p.144-145. Labor policies. Eligibility of projects. Financing. Organization. Private projects. Housing. R.F.C. projects.

Ten zones set up for administration of public works. Engineering News-Record. v.3, no.3. July 20, 1933. p.88. Ten regions selected were as follows: 1. New England. 2. New York, Pennsylvania and New Jersey. 3. Wisconsin, Illinois, Michigan, Indiana, and Ohio. 4. North Dakota, South Dakota, Nebraska, Minnesota, Iowa, and Wyoming. 5. Montana, Idaho, Washington, and Oregon. 6. California, Nevada, Utah, and Arizona. 7. Texas, New Mexico, and Louisiana. 8. Colorado, Kansas, Oklahoma, Missouri, and Arkansas.

Public Works. (Cont'd.)

9. Mississippi, Alabama, Georgia, South Carolina, and Florida.
10. Tennessee, Kentucky, West Virginia, Maryland, Delaware, Virginia, and North Carolina.

Reclamation.

Factor of profit in land reclamation. By James A. King. Agricultural Engineering. v.14, no.7. July 1933. p.188. Main purpose of land reclamation is to keep in production, as well as to bring into production, those lands which most deserve to be in production; and, as all involved conditions warrant, to take out of agricultural production those lands which can best serve man's needs by being put to some other use.

Refrigeration.

Automatic equipment for electric refrigeration. Refrigeration, Cold Storage and Air-Conditioning. v.4, no.1. April 30, 1933. p.13-16. Automatic expansion valve. Water control or conservation valves. Low side float valves. High side float valve. Suction line throttle valves. Temperating or two-temperature valves. Thermostats. Pressurestats. Thermal overload cut-outs. Water shortage knocout.

Comparison of carbonic and ammonia refrigeration cycles. By H. J. McIntyre. Power. v.77, no.8. August, 1933. p.412-414. Refrigeration performance and compressor work are here compared when carbon dioxide and ammonia are used as refrigerants in two-stage compressors and in dual system using both refrigerants.

Developments in refrigerated transport. Refrigerating Engineering. v.26, no.1. July 1933. p.9-14. Refrigerator car: historical development. Mechanical systems applied to freight cars. Operation of refrigeration on shipboard.

Dry-ice as a refrigerant in railway equipment. By C. W. King. Ice and Refrigeration. v.84, no.5. May 1933. p.343-347. Use of solidified carbon dioxide in transportation of frozen foods. Early adaptation to railway refrigeration. Experiments with refrigerator cars. Meeting needs of frozen food shippers. Beneficial effect of carbon dioxide gas. Methods of storage. Plants located at strategic points.

Production of manufactured ice at low bring temperatures. By Dana Burks, Jr. 1933. 66p. Illinois. Engineering Experiment Station. Bulletin No. 254. Report of investigation conducted by Engineering Experiment Station, University of Illinois, in cooperation with Utilities Research Commission, Inc.

Refrigeration. (Cont'd.)

Refrigeration for the farmer. By D. F. Keith. Refrigerating Engineering. v.25, no.6. June 1933. p.327,372. On farms of all types. Mechanical refrigeration seems certain to become accepted part of farm life, exerting its influence on way of living as has motor car.

Roofs.

New values in galvanized roofing. By K. J. T. Ekblaw. Farm Machinery and Equipment. No. 1795 July 15, 1933. p.4.

Silos.

Trench silo in Nebraska. By Ivan D. Wood and E. B. Lewis. 1933. 31p. Nebraska. Agricultural College. Extension Service. Extension Circular No. 713

Soils.

Changes in volume that occur when dry soils are wetted with water and with chemical solutions. By George Bouyoucos. Journal of the American Society of Agronomy. v.25, no.2. February 1933. p.129-133. It was found that original or absolute volume of soils and liquids considered together decreases when soils are brought into intimate contact with liquids. Volume contraction varies with different soils, being greater in clays and in soils with high organic content. Volume contraction is probably due to compression of water absorbed by soils. When soils are saturated with water or chemical solutions and swell and increase in volume, this increase in volume is only apparent and not real. In real volume there is decrease.

Comparison of various methods for determining the fertilizer needs of certain soils. By F. B. Smith, P. E. Brown and O. R. Neal. Journal of the American Society of Agronomy. v.25, no.6. June 1933. p.383-391. Historical. Methods of procedure. Discussion. Summary and conclusions.

Factors that determine curvature of mud-cracked layers. By W. H. Bradley. American Journal of Science. v.26, no.151. July 1933. p.55-71. Three factors play predominant role in determining curvature of polygonal, mud-cracked layers of plates; (1) vertical grain size gradient, that is, the decrease upward (or downward) in size of grains; (2) presence of salt crystals; and (3) rate of drying. Theoretical principles controlling shrinkage of drying muds and experimental work of students of moist soils and muds, indicate that finer grain size, and greater proportion of clayey, flake-like particles, greater shrinkage capacity and cohesiveness of mud.

Soil fertility losses under Missouri conditions. By Hans Jenny. 1933. 10p. Missouri. Agricultural Experiment Station. Bulletin No. 324.

Soils. (Cont'd.)

Soil management and fertilizers for Indiana fruit crops. 1933 4p. Purdue University. Cooperative Extension Work in Agriculture and Home Economics. Leaflet No. 185.

Treatment of muck and dark sandy soils. By S. D. Conner. 1933 6p. Purdue University. Department of Agricultural Extension. Leaflet No. 179.

Standardization.

National standardization in America. By P. G. Agnew. Industrial Standardization and Commercial Standards Monthly. v.4, no.7. July 1933. p.107-114. What industrial standardization is; types of standards; why standards are needed; standardizing agencies; when to standardize.

Storage.

Effect of ozone upon apples in cold storage. By Clarence E. Baker. Ice and Refrigeration. v.84, no.5. May 1933. p.340-342. New developments in air conditioning in cold storage warehouses enable holding of perishable products for longer period than formerly. Properties and action of ozone. Ozone studies with apples. Supplied to storage rooms. Influence on storage scald.

Fruit and vegetable storage. By James Kelley and George Amundson. Successful Farming. v.31, no.8. August 1933. p.9,36-37.

Tires.

Rubber beats steel. Arizona Producer. v.12,no.10. August 1, 1933. p.4. Southwest Cotton Company decides on pneumatic tires for its big fleet of tractors.

Tires for tractors. Nebraska Farmer. v.75, no.15. July 22, 1933. p.6. Tests of farm tractors equipped with new pneumatic tires, which run on as little as twelve pounds of air, have been made at Purdue University. It was found that big rubber tires, when pulling tandem disk and harrow, saved one-third gallon of gasoline and 17 per cent times per acre as compared with metallic wheels. It was also found that rubber tires would pull outfit at 4½ miles per hour in third gear, while steel wheels would not move load in third gear. Other advantages claimed for these new tires are their immense ground contact, preventing them from sinking into soft soil, and their ability to travel on hard roads and into barns, where steel lug wheels cause injury. Purdue tests established fact that they also prevent injury to soft ground in hay fields.

Tractors.

Factors found that cut tractor costs in half. Building Material Digest. v.2, no.7. July 1933. p.24. In study involving cost of operating general-purpose tractors in 1931 hour-cost varied from 42 cents to 96 cents. On group of tractors working less than 250 hours a year hour-cost was 66 cents; where tractors were used more than 650 hours a year, hour-cost was 49 cents. Number of hours of tractor use was especially low on small farms and on farms where too few horses were displaced by tractor. On group of farms where 6 horses a farm were displaced, labor, power, and machinery costs were $1.35 an acre less than on another group of farms where only 2.3 horses were displaced on average.

More tractor hours mean lower costs. By Research Department, National Association of Farm Equipment Manufacturers. Farm Implement News. v.54, no.16. August 3, 1933. p.18-19. Hourly cost decreases in proportion to increase in number of hours of use per year, regardless of what cost may be for any particular number of hours.

More work lowers tractor's cost. Implement and Tractor Trade Journal. v.48, no.15. July 29, 1933. p.6,12. Increasing number of hours cuts expense to minimum, University of Illinois surveys show. Greatest loss is in duplicating power equipment with horses.

Ventilation.

Cow barn ventilation. By Alfred J. Offner. Heating, Piping and Air Conditioning. v.5, no.1. January 1933. p.59-66. The cow. Need of ventilation. Amount of ventilation. Temperature of barns. Animal heat. Allowable barn cubage. Humidity of the barn air. Condensation: drip and protection against same. Types of ventilating systems. Top versus bottom exhaust. Gravity and fan exhaust. Air intakes. Air exhausts. Kind of materials used. Hand and automatic control. Barn construction and insulation. Permissible building heat losses.

How to select proper motors for ventilating-fan drivers. By C. P. Hamilton. Power. v.77, no.8. August 1933. p.406-408. Application of motors to ventilating-fan drives on the basis of their adaptability to speed control, relative cost, power consumption and quietness.

Water Heating.

Water heating for the farm house. Rural Electrification and Electro Farming. v.9, no.97 June 1933. p.26-27. As general guide, 1 kw heater may be fitted in 18 to 25 gallon tank, 2 kw heater in 30 to 45 gallon tank, and 3 kw heater to tank up to 75 gallons capacity.

Water Heating. (Cont'd.)

Water heating installation free. Electrical World. v.102, no.2 July 8, 1933. p.60-61 Profitable business developed by Hydro-Electric Power Commission of Ontario. Details of installation and costs.

Water Supply.

Reducing water costs. By Ralph S.. Moore. California Cultivator. v.60, no.14. June 10, 1933. p.283,303. Situation has become so serious that many growers have taken steps to replace electric motors with gas or Diesel type engines. However, for those who have small or medium sized tracts to irrigate, cheapest and easiest change is to automobile or truck engines.

What does water cost? By Prof. H. J. Gallagher. Michigan Farmer. v.180, no.13. June 24, 1933. p.1. Investigations show that about 400 gallons of water are used daily on 100 acre farm normally stocked and without complete water system. After installation of water system, water consumption usually increases 25 per cent or more.

Water supply for the isolated home. By Lindon J. Murphy. 1933. 47p. Iowa State College. Engineering Extension Service. Bulletin No. 114.

Water supply with rams. By R. H. Clemmer. Utah Farmer. v.53, no.22. June 25, 1933. p.5. Next to gravity good hydraulic ram provides most economical and dependable source of water supply ever invented. It will pump water day in and day out, year in and year out without one cent operating cost.

Weeds.

Eradicating weeds with chlorates. By Oliver C. Lee. 1933. 4p. Purdue University. Cooperative Extension Work in Agriculture and Home Economics. Leaflet No. 172.

Welding.

New developments extend use of arc welding. By E. W. P. Smith. Heating and Ventilating. v.30, no.6. June 1933. p.29-31. Describes relatively new shielded-arc process, its economies and some recent examples of its use.

Wood.

Analysis of log production in the "inland empire" region. By M. Bradner, F. J. Klabucher, J. W. Girard, and S. V. Tullaway, Jr. 1933. 87p. U. S. Department of Agriculture. Technical Bulletin No. 355.